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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,248	02/13/2004	Nobuhiro Ito	03500.014055.1	5393
5514	7590	06/28/2005	EXAMINER	
FITZPATRICK CELLA HARPER & SCINTO			ROY, SIKHA	
30 ROCKEFELLER PLAZA			ART UNIT	
NEW YORK, NY 10112			PAPER NUMBER	

2879

DATE MAILED: 06/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/777,248

Applicant(s)

ITO ET AL.

Examiner

Sikha Roy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 February 2004.  
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 43-55 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☒ Claim(s) 43-50, 53 and 54 is/are allowed.  
6) ☒ Claim(s) 51, 52 and 55 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 13 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 0204.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

The Preliminary Amendment, filed on February 13, 2004 has been entered and is acknowledged by the Examiner.

Cancellation of claims 1-42 has been entered.

### ***Specification***

The disclosure is objected to because of the following informalities:

The current status of the parent application should be included.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 51 is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,690,530 to Jin et al.

Regarding claim 51 Jin discloses (column 5 lines 45-55, column 6 lines 1-17) a method of manufacturing a spacer (pillars) defining the interval between substrates

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(anode and cathode layers) comprising steps of forming on a spacer substrate a first slurry-like or suspension-like mixture containing fine particles and then forming on the fine particle film a second-slurry-like mixture containing semiconductive materials including metals or oxides such as  $\text{Cr}_2\text{O}_3$  known as high resistivity materials. It is noted that first slurry-like mixture containing fine particle inherently has uneven surface.

Claims 51,52 and 55 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,403,209 to Barton et al.

Regarding claim 51 Barton discloses (Figs. 1, 14a-14c column 35 lines 1-16, 51-61) a spacer defining an interval between two substrates 20 and 22 is manufactured by a method comprising steps of forming on a substrate 80 fine particle film 82 having pores and uneven surface (uneven porous layer 146 in 14b) and then forming a high resistivity film of carbon on the fine particle film (porous layer) 82.

Regarding claim 52 Barton discloses the uneven fine particle film (the pre-cursor containing liquidous layer) can be formed on the core substrate by dipping the substrate in the liquid containing organic pre-cursor material particles.

Referring to claim 55 Barton discloses (Figs. 1, 14a-14c column 8 lines 9-25) method of manufacturing field-emission display comprising a first substrate (back plate structure) 20 having electron emitting element, a second substrate (face plate structure) 22 disposed in opposition to the first substrate 20 and a spacer 24 defining the interval between the two substrates comprises the steps of forming the spacers generally shaped as flat walls and disposing the spacers between the two substrates. The

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method of forming the spacer comprises steps of forming on a substrate 80 fine particle film 82 having pores and uneven surface (uneven porous layer 146 in 14b) and then forming a high resistivity film of carbon on the fine particle film (porous layer) 82.

### ***Allowable Subject Matter***

Claims 43,44-50,53 and 54 are allowed over the prior art of record.

Regarding claims 43 and 53 the prior art of record neither teaches nor suggests the method of manufacturing a spacer with all the limitations as claimed and particularly the limitation comprising the steps of forming first unevenness and then forming second unevenness of a smaller cycle period than that of the first unevenness on the spacer substrate.

Regarding claims 44 and 54 the prior art of record neither teaches nor suggests the method of manufacturing a spacer with all the limitations as claimed and particularly the limitation comprising the steps of forming first unevenness and then forming second unevenness of a smaller amplitude than that of the first unevenness on the spacer substrate.

Claims 45-50 are allowable because of their dependency status from claim 44.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent 6,441,544 to Ando et al. discloses (column 13 lines

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1-16) oxides of chromium, nickel, copper and carbon can be suitably used for high resistance films. U.S. Patent 6,657,368 to Kosaka et al. discloses two films formed on the surface of spacers.

### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikha Roy whose telephone number is (571) 272-2463. The examiner can normally be reached on Monday-Friday 8:00 a.m. – 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D. Patel can be reached on (571) 272-2457. The fax phone number for the organization is (703) 308-7382.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*S.R.*

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